



THE **DBT SERIES** HYDRAULIC BOLT TENSIONERS WILL ENSURE UNIFORMED GASKET COMPRESSION.

Compression is essential for the integrity of critical bolted flange connections. Unlike a torque wrench, the DBT Series Bolt Tensioners are capable of tightening more than one bolt at a time and can apply a consistent torque via direct axial stretching to any given number of bolts simultaneously. These tensioners have been designed to fit all standard ANSI & API flanges with quick release bridge and hexagon socket for fast change over. There are 10 load cells from M20 to M150 or 3/4" to 5-3/4" and they are light and easily handled. All cylinders are electroless nickel plated for extra protection and are easily maintained.



Model Number	DBT-20	DBT-35	DBT-50	DBT-60	DBT-90	DBT-130	DBT-160	DBT-200	DBT-250	DBT-310
Maximum Force (kN)	300	525	750	900	1,350	1,950	2,400	3,000	3,750	4,650
Piston Stroke (mm)	8	8	8	8	8	8	10	10	10	10
Maximum Pressure (bar)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Effective Area (cm ²)	20	35	50	60	90	130	160	200	250	310
Metric Bolt Dimension (Ø * pitch)	M20*2.5	M27*3	M36*4	M42*4.5	M45*4.5	M60*5.5	M72*6	M80*6	M100*6	M125*6
	M22*2.5	M30*3.5	M39*4	M45*4.5	M48*5	M64*6	M76*6	M85*6	M110*6	M130*6
	M24*3	M33*3.5	M42*4.5	M48*5	M52*5	M68*6	M80*6	M90*6	M120*6	M140*6
	M27*3	M36*4	M45*4.5	M52*5	M56*5.5	M72*6	-	M95*6	M125*6	M150*6
	-	-	-	-	M60*5.5	M76*6	-	M100*6	-	-
Imperial Threads (Ø in-)	3/4"-10	1"-8	1-3/8"-6	1-1/2"-6	1-3/4"-5	2-1/2"-4	2-3/4"-4	3-1/4"-4	3-3/4"-4	5"-4
	7/8"-9	1-1/8"-7	1-1/2"-6	1-3/4"-5	2"-4-1/2	2-3/4"-4	3"-4	3-1/2"-4	4"-4	5-1/4"-4
	1"-8	1-1/4"-7	1-3/4"-5	2"-4-1/2	2-1/4"-4-1/2	-	-	3-3/4"-4	4-1/4"-4	5-1/2"-4
	-	1-3/8"-6	-	-	-	-	-	-	4-1/2"-4	5-3/4"-4
	-	-	-	-	-	-	-	-	4-3/4"-4	-
Weight (kg)	3	5	8	11	18	25	33	39	56	77

MULTIPLE SIZES

for thread adapters
per load cell

KNURLED FINISH

provides anti-slip grip
for better handling

DUAL PORTS

allow quick
coupling of
multiple tools

REMOVABLE AND ROTATIONAL BRIDGE

with full bridge window
to simplify positioning

ELECTROLESS NICKEL PLATED

for extra protection

BRIDGE SIZE STANDARD

for each load cell

TOMMY BAR

supplied to enable easy
tightening or loosening of the
thread adaptor or hex socket

MULTIPLE SIZES

for hex
sockets per
load cell



CAPACITY

300 - 4,650 kN

STROKE

8 - 10 mm

BOLT RANGE

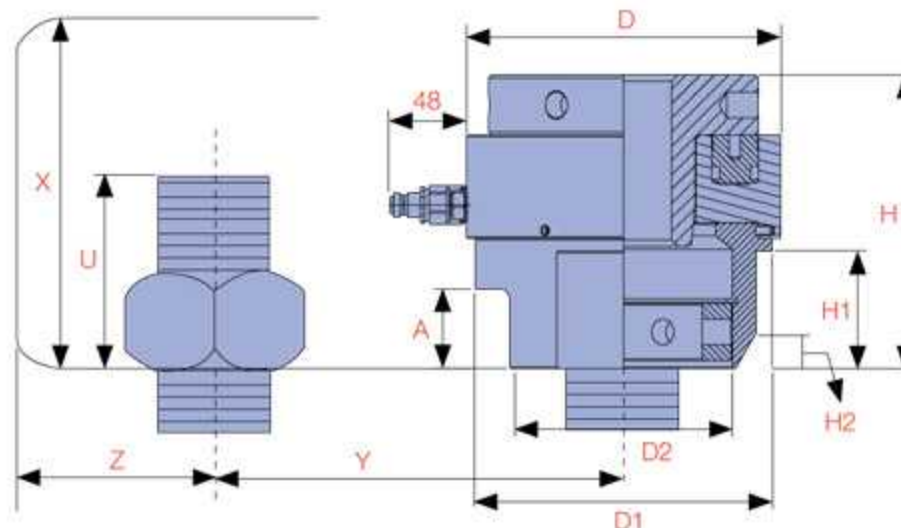
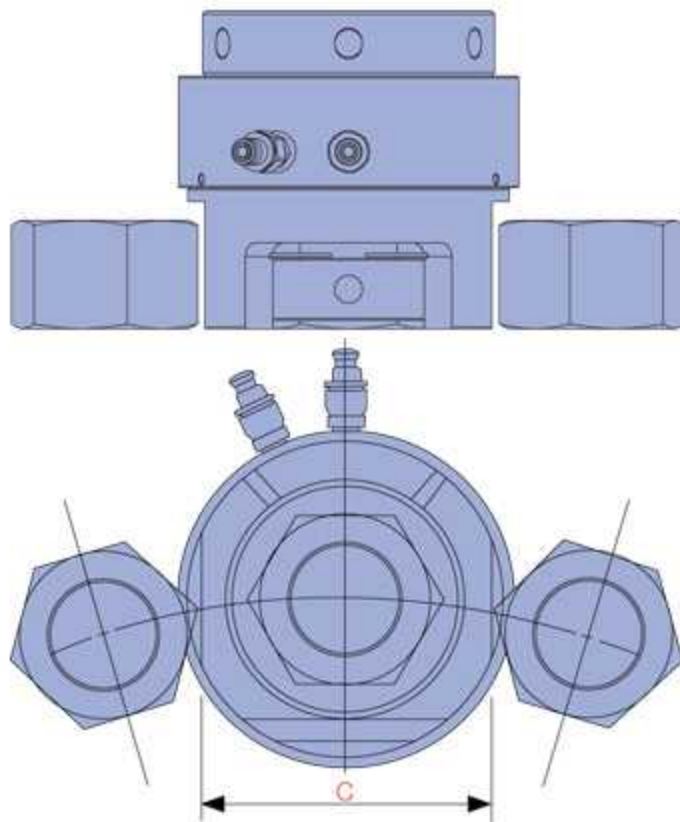
**3/4" - 5-3/4" or
M20 - M150**

MAXIMUM OPERATING PRESSURE

1,500 bar

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BOLTING SOLUTIONS



Model Number	DBT-20	DBT-35	DBT-50	DBT-60	DBT-90	DBT-130	DBT-160	DBT-200	DBT-250	DBT-310
A (mm)	26	31	38	40	42	50	50	60	73	86
C (mm)	66	83	100	118	134	167	175	210	253	293
D (mm)	86	109	128	144	170	198	220	244	300	340
D1 (mm)	74	97	116	133	154	187	203	232	272	313
D2 (mm)	56	73	90	102	114	137	145	180	223	260
H (mm)	105	116	128	140	154	185	190	203	235	268
H1 (mm)	25	35	45	54	59	74	74	97	131	156
H2 (mm)	5.2	5.2	10.4	10.4	13.9	22.5	22.5	22.5	22.5	32.5
U (mm)	38	52	69	80	86	114	137	152	190	238
	42	57	74	86	92	122	145	162	209	247
	46	63	80	92	99	130	152	171	228	266
	52	69	86	99	107	137	-	181	238	285
X (mm)	-	-	-	-	114	145	-	190	-	-
	138	168	197	220	240	293	327	355	425	506
	142	173	202	226	246	301	335	365	444	515
	146	179	208	232	253	309	342	374	463	534
Minimum Installation Height	152	185	214	239	261	316	-	384	473	553
	-	-	-	-	268	324	-	393	-	-
	56	73.5	91	91	119	147	163.5	184.5	222	262.5
	57	76.5	94	92	122	150	166.5	187.5	227.5	265
Y (mm)	59	79	97	94	124.5	153	169.5	193	236	274
	62	81	100	96	127.5	155.5	-	196	242	280
	-	-	-	-	130.5	158.5	-	202	-	-
	-	-	-	-	-	-	-	-	-	-
Z (mm) Diametric Clearance	44.5	56	65.5	69.4	84.5	101	109	124	144	164.5

1 CYLINDER AND BRIDGE



2 THREAD AND SOCKET KIT



How to order...

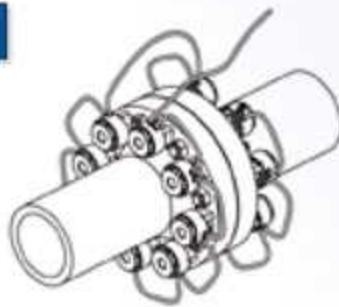
For greater flexibility Thread & Socket Kits are ordered separately.

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- 1) Select appropriate Cylinder and Bridge model
- 2) Select appropriate Thread and Socket Kit based on bolt diameter and AF size
- 3) Create order for complete unit e.g.
1 x DBT-50 Cylinder and Bridge
1 x DBT-50-M42-65 Thread and Socket Kit

Bolt Diameter (mm)	AF Size (mm)	Cylinder & Bridge Number									
		DBT-20 300 kN	DBT-35 525 kN	DBT-50 750 kN	DBT-60 900 kN	DBT-90 1,350 kN	DBT-130 1,950 kN	DBT-160 2,400 kN	DBT-200 3,000 kN	DBT-250 3,750 kN	DBT-310 4,650 kN
		Thread & Socket Kit									
M20 x 2.5	30	M20-30									
M22 x 2.5	32	M22-32									
M24 x 3	36	M24-36									
M27 x 3	41	M27-41	M27-41								
M30 x 3.5	46		M30-46								
M33 x 3.5	50		M33-50								
M36 x 4	55		M36-55	M36-55							
M39 x 4	60			M39-60							
M42 x 4.5	65			M42-65	M42-65						
M45 x 4.5	70			M45-70	M45-70	M45-70					
M48 x 5	75				M48-75	M48-75					
M52 x 5	80				M52-80	M52-80					
M56 x 5.5	85					M56-85					
M60 x 5.5	90					M60-90	M60-90				
M64 x 6	95						M64-95				
M68 x 6	100						M68-100				
M72 x 6	105						M72-105	M72-105			
M76 x 6	110						M76-110	M76-110			
M80 x 6	115							M80-115	M80-115		
M85 x 6	120								M85-120		
M90 x 6	130								M90-130		
M95 x 6	135								M95-135		
M100 x 6	145								M100-145	M100-145	
M110 x 6	155									M110-155	
M120 x 6	170									M120-170	
M125 x 6	180									M125-180	M125-180
M130 x 6	185										M130-185
M140 x 6	200										M140-200
M150 x 6	210										M150-210

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2



Tensioning

Not all applications allow for the simultaneous fit of a tensioning device on each bolt, in these cases at least two tensioning pressures are applied.

- 1) Setup using a 100% tensioning procedure
- 2) Setup using a 50% tensioning procedure

Manufacturer's rating of pressure and torque are maximum safe limits. Good practice encourages using only 80% of these ratings



Bolt Diameter (inch)	AF Size (inch)	Cylinder & Bridge Number									
		DBT-20 300 kN	DBT-35 525 kN	DBT-50 750 kN	DBT-60 900 kN	DBT-90 1,350 kN	DBT-130 1,950 kN	DBT-160 2,400 kN	DBT-200 3,000 kN	DBT-250 3,750 kN	DBT-310 4,650 kN
		Thread & Socket Kit									
3/4"-10	1-1/4"	012-104									
7/8"-9	1-7/16"	014-107									
1"-8	1-5/8"	100-110	100-110								
1-1/8"-7	1-13/16"		102-113								
1-1/4"-7	2"		104-200								
1-3/8"-6	2-3/16"		106-203	106-203							
1-1/2"-6	2-3/8"			108-206	108-206						
1-5/8"-8	2-9/16"			110-209	110-209						
1-3/4"-5	2-3/4"			112-212	112-212	112-212					
1-7/8"-8	2-15/16"				114-215	114-215					
2"-4.5	3-1/8"				200-302	200-302					
2-1/4"-4.5	3-1/2"					204-308					
2-1/2"-4	3-7/8"						208-314				
2-3/4"-4	4-1/4"						212-404	212-404			
3"-4	4-5/8"							300-410			
3-1/4"-4	5"								304-500		
3-1/2"-4	5-3/8"								308-506		
3-3/4"-4	5-3/4"								312-512	312-512	
4"-4	6-1/8"									400-602	
4-1/4"-4	6-1/2"									404-608	
4-1/2"-4	6-7/8"									408-614	
4-3/4"-4	7-1/4"									412-704	
5"-4	7-5/8"										500-710
5-1/4"-4	8"										504-800
5-1/2"-4	8-3/8"										508-806
5-3/4"-4	8-3/4"										512-812

Thread Adaptor



Cylinder



Bridge

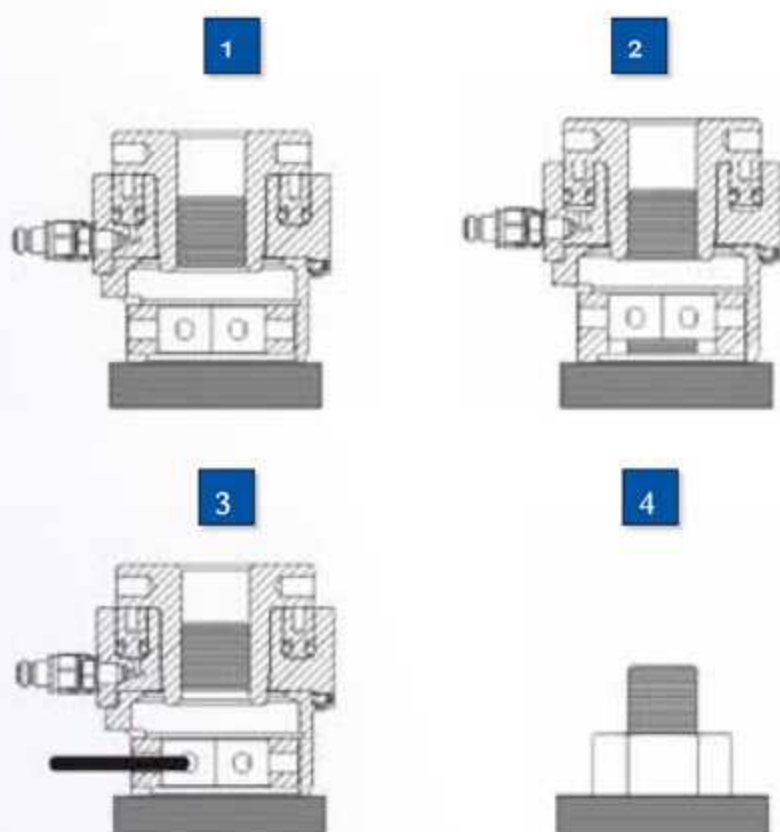


Hex Socket



Cross Sectional





Tensioner Instructions

- 1) The bolt tensioner is fitted over the stud
- 2) Hydraulic pressure is applied to the tensioner which then stretches the stud
- 3) The stud's nut is wound down against the joint face
- 4) Pressure is released and the tool removed



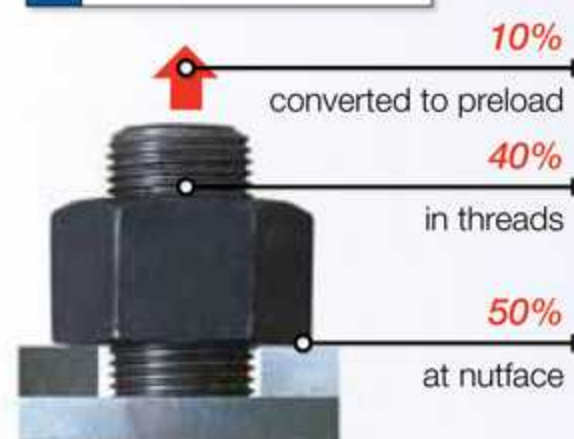
Advantages of Lubrication

- 1) Reduces the friction during tightening
- 2) Increases bolt service life
- 3) Decreases bolt failure during installation
- 4) Higher friction results in less conversion of torque to preload

FRICITION POINT



FRICITIONAL LOSS



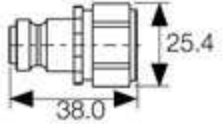
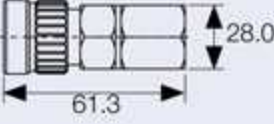
Pressure (bar)	DBT-20 kN	DBT-35 kN	DBT-50 kN	DBT-60 kN	DBT-90 kN	DBT-130 kN	DBT-160 kN	DBT-200 kN	DBT-250 kN	DBT-310 kN	Pressure (psi)
100	20	35	50	60	90	130	160	200	250	310	1,450
200	40	70	100	120	180	260	320	400	500	620	2,901
300	60	105	150	180	270	390	480	600	750	930	4,351
400	80	140	200	240	360	520	640	800	1,000	1,240	5,801
500	100	175	250	300	450	650	800	1,000	1,250	1,550	7,252
600	120	210	300	360	540	780	960	1,200	1,500	1,860	8,702
700	140	245	350	420	630	910	1,120	1,400	1,750	2,170	10,152
800	160	280	400	480	720	1,040	1,280	1,600	2,000	2,480	11,603
900	180	315	450	540	810	1,170	1,440	1,800	2,250	2,790	13,053
1,000	200	350	500	600	900	1,300	1,600	2,000	2,500	3,100	14,503
1,100	220	385	550	660	990	1,430	1,760	2,200	2,750	3,410	15,954
1,200	240	420	600	720	1,080	1,560	1,920	2,400	3,000	3,720	17,404
1,300	260	455	650	780	1,170	1,690	2,080	2,600	3,250	4,030	18,854
1,400	280	490	700	840	1,260	1,820	2,240	2,800	3,500	4,340	20,305
1,500	300	525	750	900	1,350	1,950	2,400	3,000	3,750	4,650	21,755

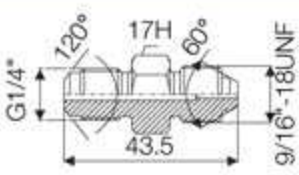
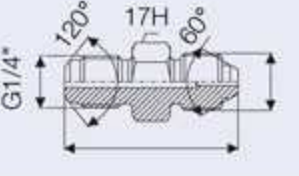
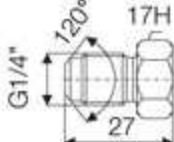


The DBTP-1500K is made up of P-2100H Hand Pump, FGA-2 Gauge Adaptor and PG-100-40K Pressure Gauge. This kit is ideal for single stud or small to medium bolt tensioning applications.



DBTP-1500K / 1,500 bar Hand Pump Kit

Model Number	Description	Dimensions
 DBT116M	 Max. W.P 150Mpa Min. B.P 300Mpa Flow at 0.4Mpa pressure 6.0L/min. Material Hardened, zinc chromate plated steel	Connect: G1/4" Weight: 60g Rec. Torque: 40-50Nm Hexagon key handle: 22
 DBT116F	 Max. W.P 150Mpa Min. B.P 300Mpa Flow at 0.4Mpa pressure 6.0L/min. Material Hardened, zinc chromate plated steel	Connect: G1/4" Weight: 165g Rec. Torque: 40-50Nm Hexagon key handle: 24

Model Number	Dimension (mm)	End One	End Two
 DBT14129166I		G1/4" 120°	9/16"-18UNF male thread with 60° internal cone
 DBT14129166E		G1/4" male thread with 120° external cone	9/16"-18UNF male thread with 60° external cone
 DBT1412SP		G1/4" male thread with 120° external cone	-

Model Number	Description	End One	End Two
 DBTH-05A*	Inner core: Polyoxymethylene (POM) Outer cover: Polyamide (PA) 4 layers of high-tensile steel wire Inside Diameter: 5.0mm, Outside Diameter: 11.2mm Working Pressure: 1,800bar, Burst Pressure: 4,500bar Minimum Bend Radius: 150mm Weight: 0.26 kg/M	G1/4" Male	G1/4" Male

* Confirm hose length in meters when ordering